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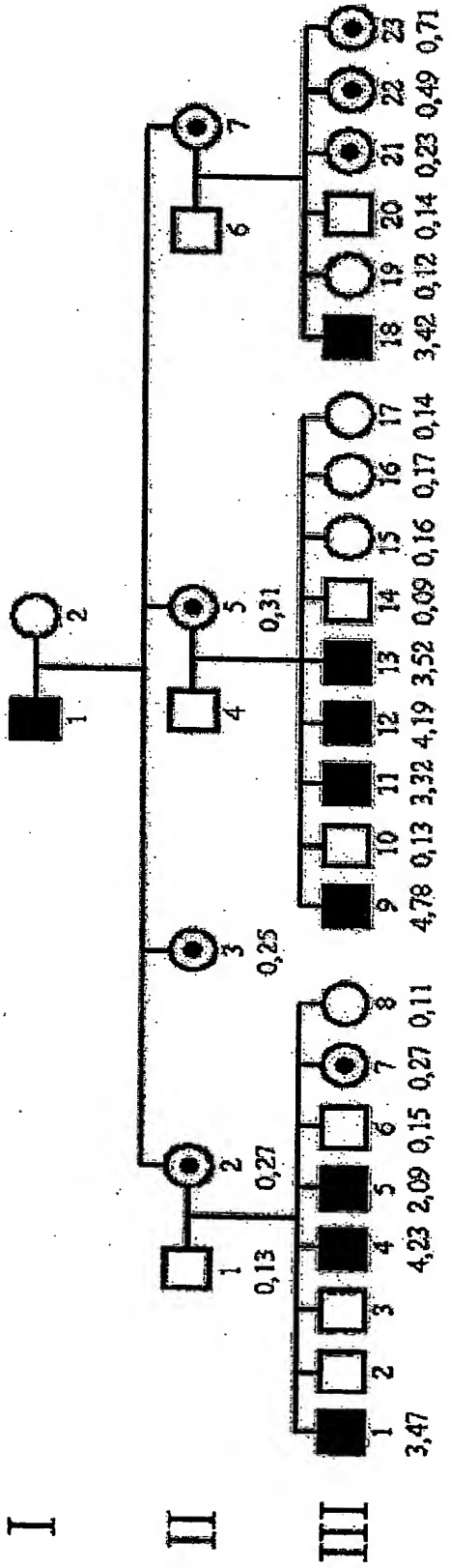

I
II
III
1
2
3
4
5
6
7
0,31
0,25
0,13
0,27
1
2
3
4
5
6
7
8
3,47
4,23
2,09
0,15
0,27
0,11
9
10
11
12
13
14
15
16
17
4,78
0,13
3,32
4,19
3,52
0,09
0,16
0,17
0,14
18
19
20
21
22
23
3,42
0,12
0,14
0,23
0,49
0,71

Figure 1A

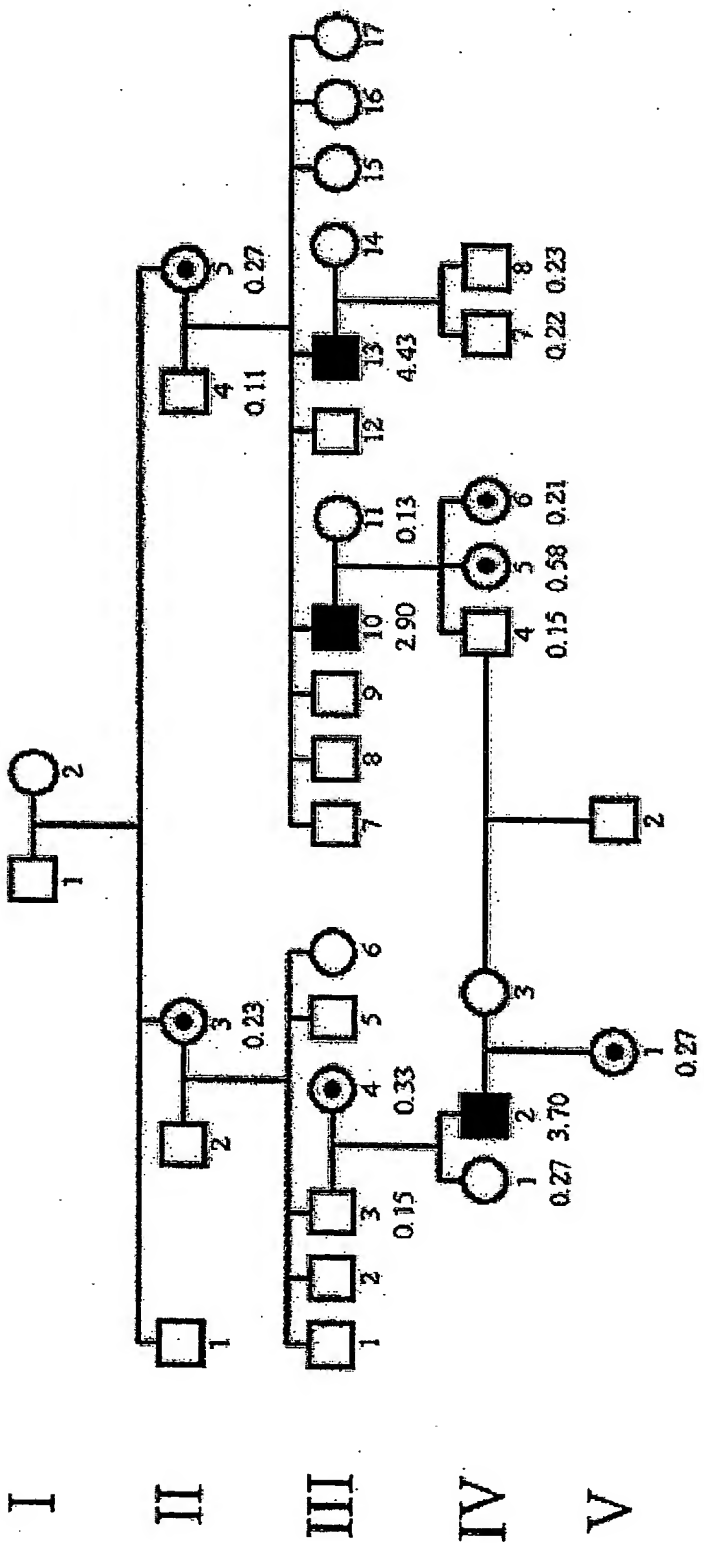

I
II
III
IV
V
0.27
0.11
4.43
0.23
0.22
0.13
0.21
0.58
2.90
0.15
0.23
0.33
0.15
0.27
3.70
0.27

Figure 1B

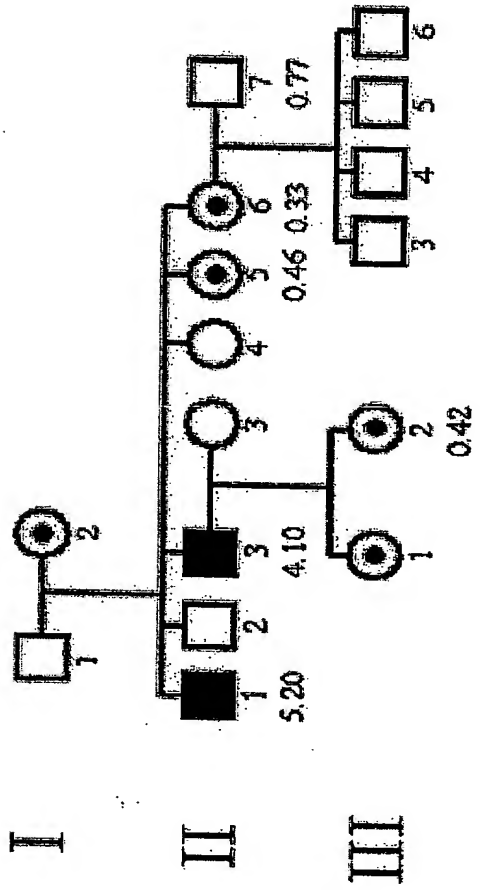


Figure 1C

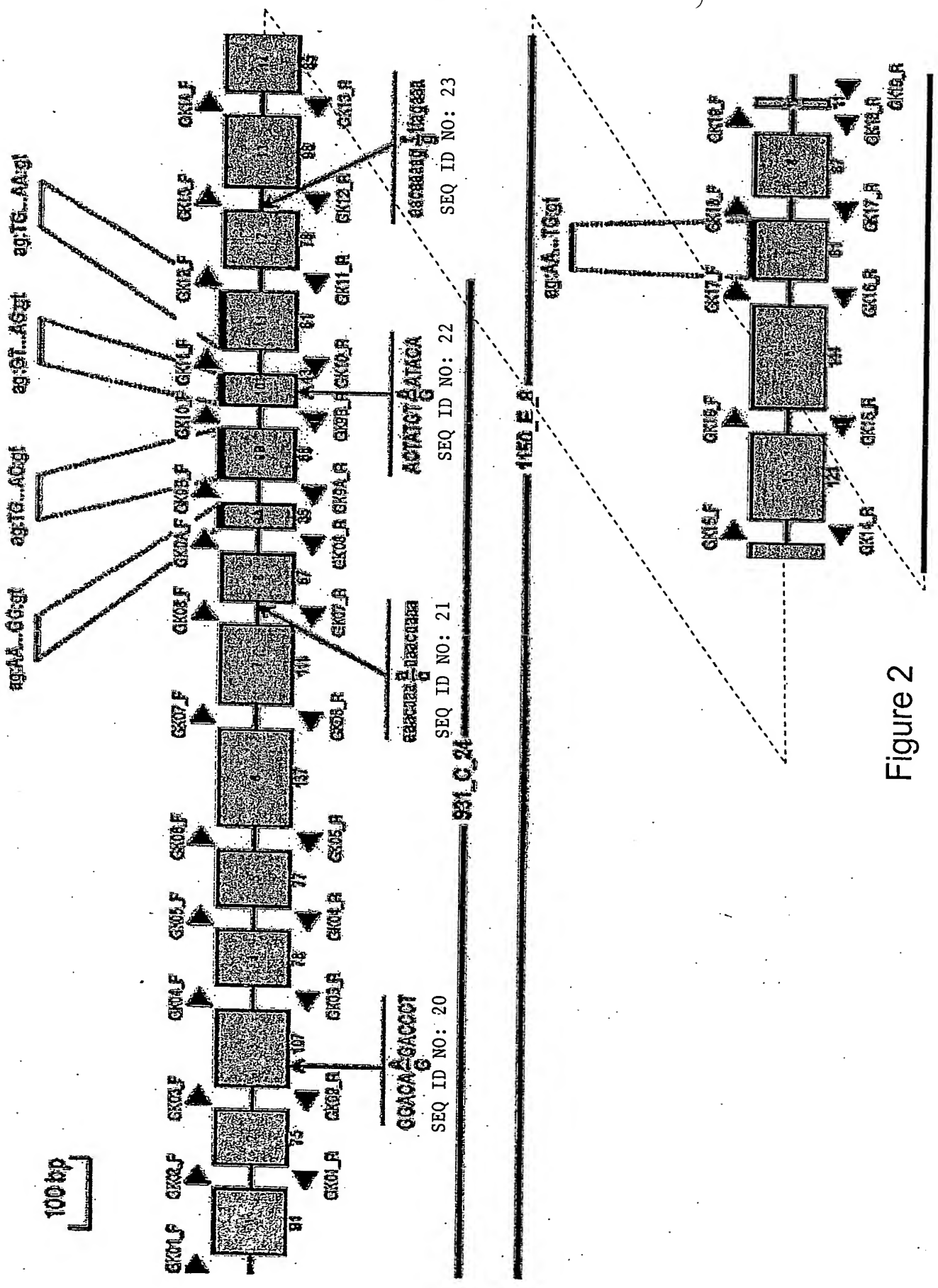
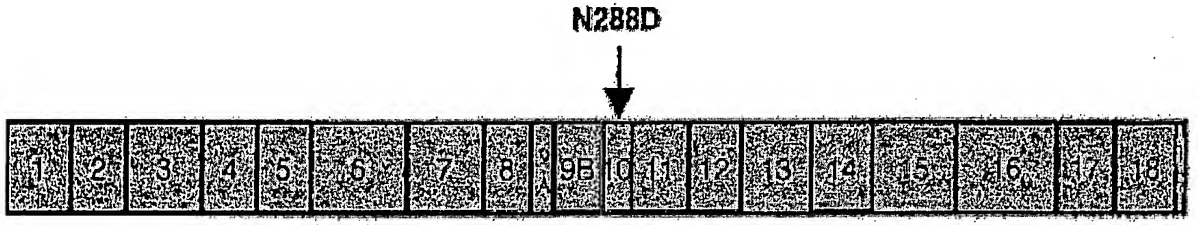

100 bp
SEQ ID NO: 20
SEQ ID NO: 21
SEQ ID NO: 22
SEQ ID NO: 23
931_C_24
1150_E_8

Figure 2

Figure 3A



G TAT GGA ACA GGA TGT TTC CTA TGT A/G AT ACA GGC CAT AAG

Figure 3B

	270	310	
GK N288D Mutant	FQIGQAKNTYGTGCFLLQTGHKCVFSDHGLLTTVAYKLGR		SEQ ID NO: 6
glpk_human	FQIGQAKNTYGTGCFLLQTGHKCVFSDHGLLTTVAYKLGR		SEQ ID NO: 7
glpk_rat	FQDGQAKNTYGTGCFLLQTGHKCVFSEHGLLTTVAYKLGR		SEQ ID NO: 8
glpk_mouse	FQDGQAKNTYGTGCFLLQTGHKCVFSEHGLLTTVAYKLGR		SEQ ID NO: 9
glpk_ecoli	VKEGMAKNTYGTGCFMLMTGEKAVKSENGLLTTIAC--GP		SEQ ID NO: 10
glpk_pseae	VEPGQAKNTYGTGCFLLMTGDKAVKSTHGLLTTIAC--GP		SEQ ID NO: 11
glpk_entca	FEKGMIKNTYGTGAFIVMNTGEEPQLSDNDLLTTIGY--GI		SEQ ID NO: 12
glpk_haein	VHAGQAKNTYGTGCFMLLTTGNKAITSKNGLLTTIACNAKG		SEQ ID NO: 13
glpk_bacsu	FEEGMGKNTYGTGCFMLMNTGEKAIKSEHGLLTTIAW--GI		SEQ ID NO: 14
glpk_yeast	YKPGAAKCTYGTGCFLLYNTGTKKLISQHGALTTLAFWFFH		SEQ ID NO: 15
glpk_mycge	TEPGMVKNTYGTGCFVLMNIGDKPTLSKHNLLTTVAWQLEN		SEQ ID NO: 16
glpk_entfa	FEPGMVKNTYGTGSFIVMNTGEEPQLSKNNLLTTIGY--GI		SEQ ID NO: 17
glpk_mycpn	VEPAMVKNTYGTGCFMLMNIGNELKYSQHNLLTTVAWQLEN		SEQ ID NO: 18
glpk_syny3	DRFGLLKCTYGTGAFLVANTGQTVTRSQHRLLSTVAWTQTN		SEQ ID NO: 19

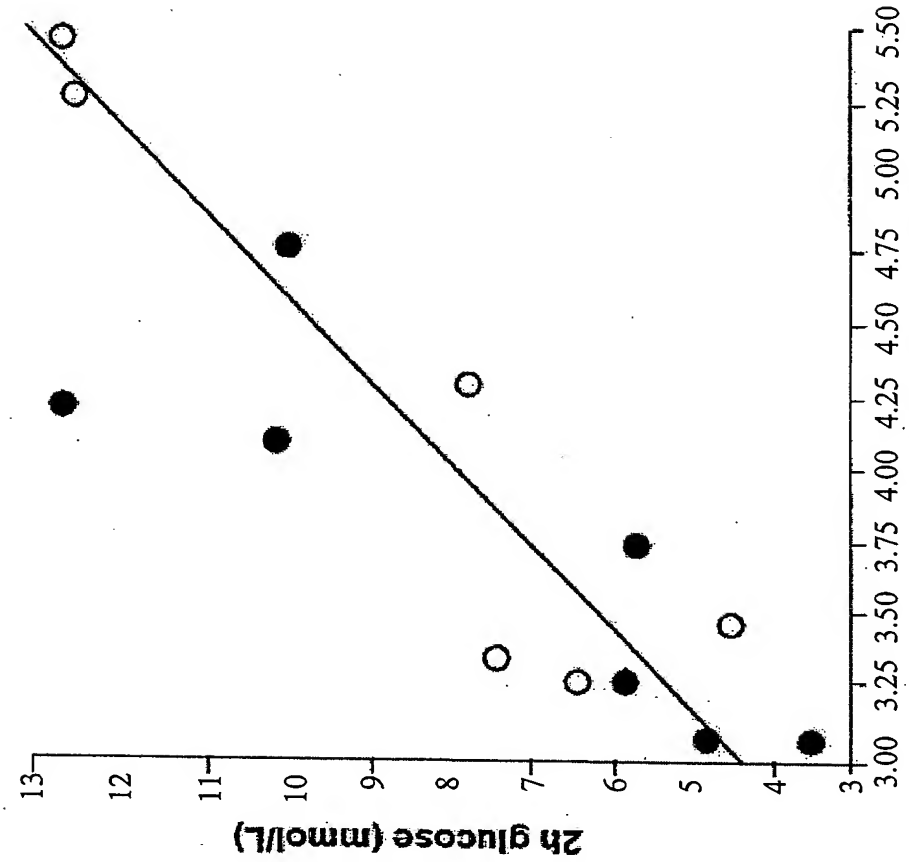

2h glucose (mmol/L)
13
12
11
10
9
8
7
6
5
4
3
Fasting glycerol (mmol/L)
3.00
3.25
3.50
3.75
4.00
4.25
4.50
4.75
5.00
5.25
5.50

Figure 4A

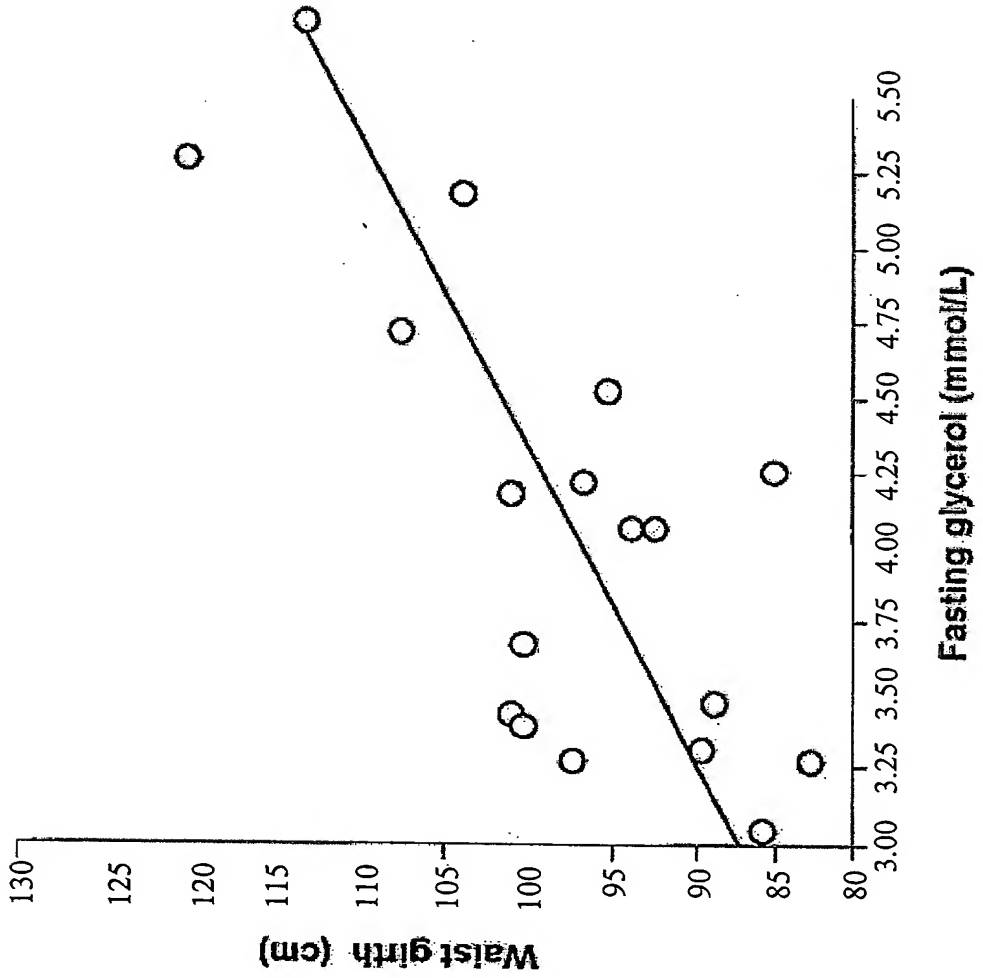

Waist girth (cm)
130
125
120
115
110
105
100
95
90
85
80
Fasting glycerol (mmol/L)
3.00
3.25
3.50
3.75
4.00
4.25
4.50
4.75
5.00
5.25
5.50

Figure 4B

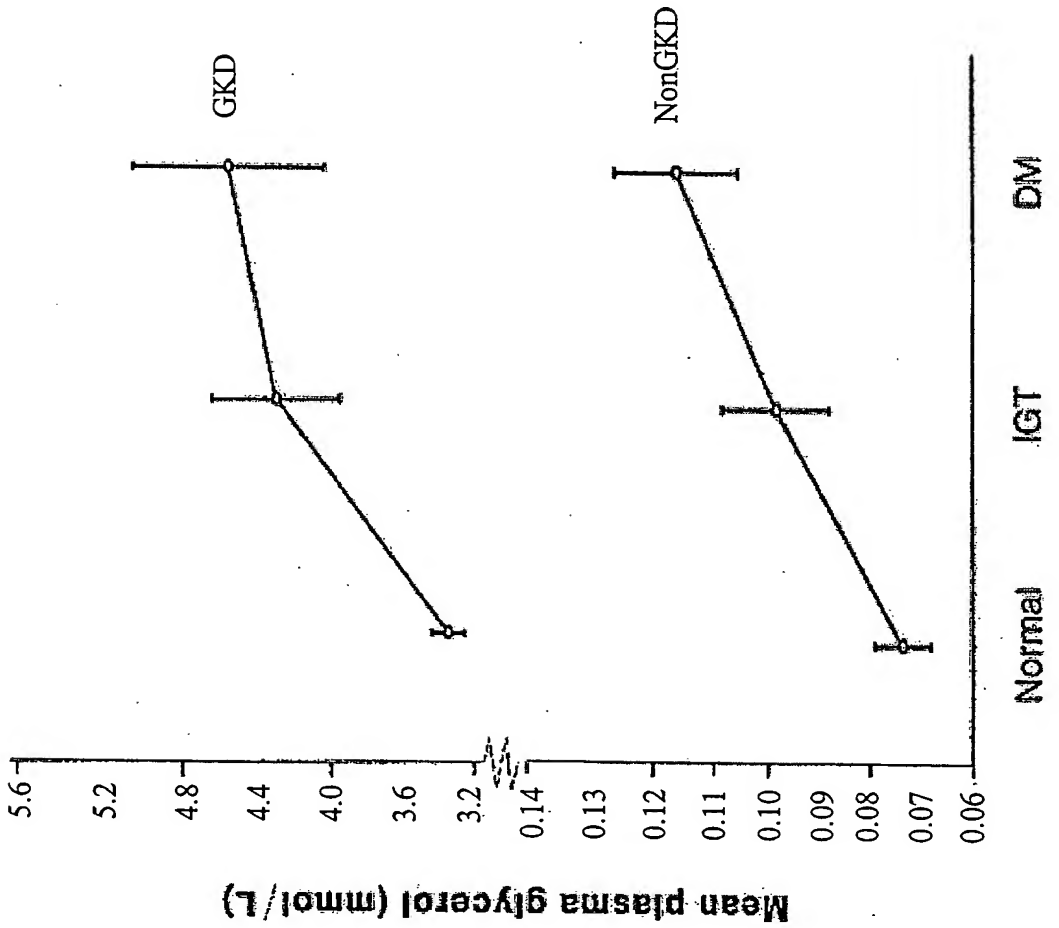

GKD
NonGKD
Mean plasma glycerol (mmol/L)
5.6
5.2
4.8
4.4
4.0
3.6
3.2
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
Normal
IGT
DM

Figure 4C

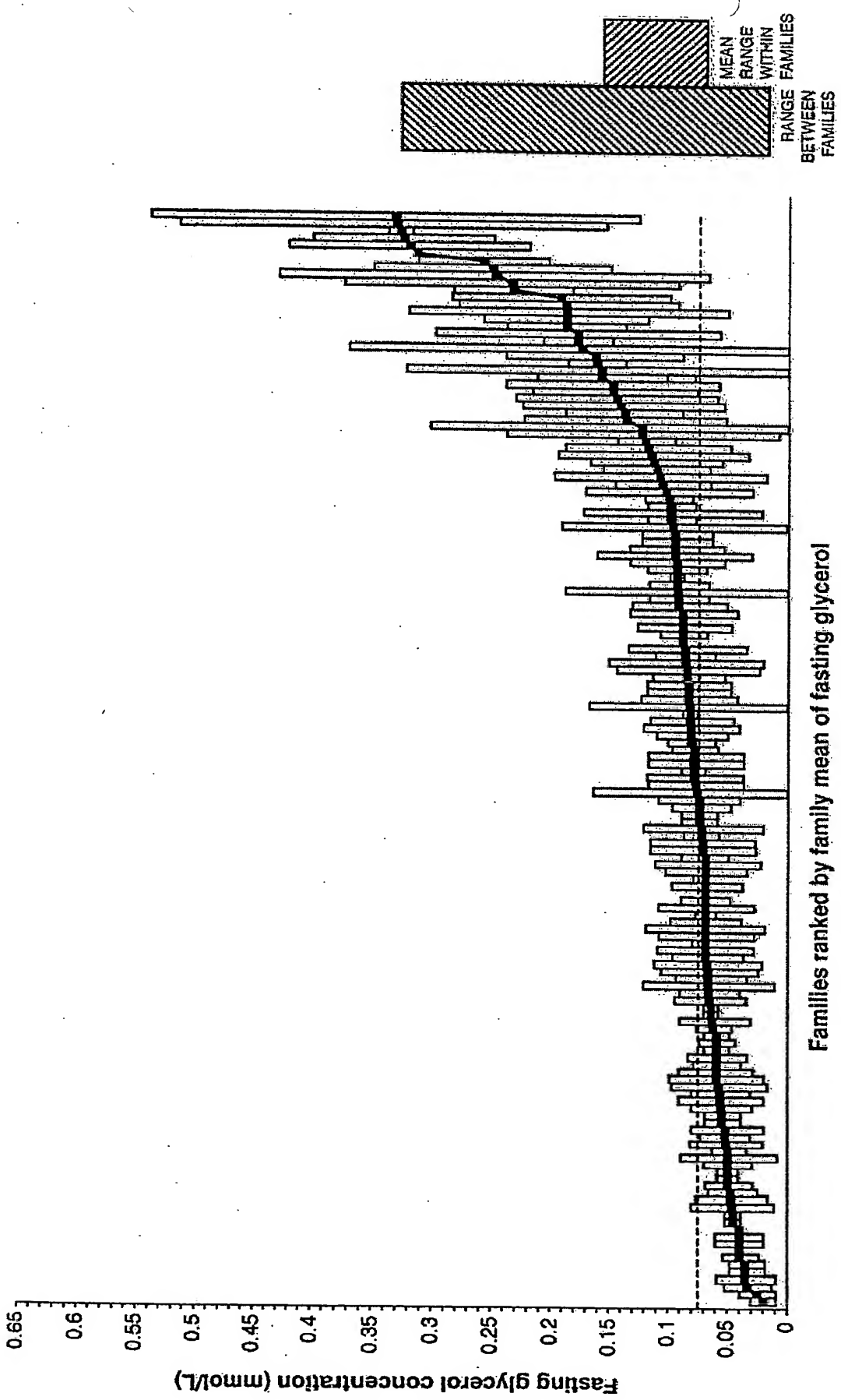

MEAN RANGE WITHIN FAMILIES
RANGE BETWEEN FAMILIES
Fasting glycerol concentration (mmol/L)
0.65
0.6
0.55
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Families ranked by family mean of fasting glycerol

Figure 5

poly: A/G
location:13th base of exon 3

ATGCCTTCTTTTGTCAAAGATGGGTGGAACA[A/G]GACCCTAAGGAAATTCTACAT
TCTGTCT **SEQ ID NO: 1**

CAA vs CAG ==> silent

poly: A/C
location:17th base of intron 8
TAATGGTAAAAAACAAACAAA[A/C]AAACAAAAAACACACCAAAAAACCAA
SEQ ID NO: 2

poly: A/G
location: 29th base of exon 10

TTCATTCTCCCTTCAACCATAGGTATGGAACAGGATGTTTCTTACTATGT[A/G]AT
ACAGGCCATAAGGTtGGTTTTTAATAAAAATGATTAAGTCA **SEQ ID NO: 3**

AAT vs GAT ==> N to D

poly: G/T
location: 22nd base of intron 12
GAAATTGGTGAGTGTGTTCTAACAAAAG[G/T]TTAGAAAATCTGAAAAATGACACA
TTTCA **SEQ ID NO: 4**

Figure 6

SEQ ID NO: 5

Exon 1:
GGTTCAGCGGACGCGCGCGGCCTCGGTCTCTGGACTCGTCACCTGCCCCTCCCCCTCCCGCC
GCCGTCACCCAGGAAACCGGCCGCAATCGCCGGCCGACCTGAAGCTGGTTTCATGGCAGCCT
CAAAGAAGGCAGTTTTGGGGCCATTGGTGGGGGCGGTGGACCAGGGCACCAGTTCGACGCGC
TTTTTGGTGAGCCCGGGGTGACATGTGAAGAGGCGCTGAGC

Exon 2:
TGTAAAACGACGGCCAGTCATCCTTGATATCTGCCTGCATTTTTACATTAATATTACAATAT
CTTTTTCAGGTTTTCAATTCAAAAACAGCTGAACTACTTAGTCATCATCAAGTAGAAATAAA
ACAAGAGTTCCCAAGAGAAGGGTATGTTTCCTAATTTAATATGTAAAGACACATTATGTTTG
TTAGTCCATCTCACCCAACTTGCCC

Exon 3:
CAATGCCTTCTTTTGTCAAAGATGGGTGGAACA[A/G]GACCCTAAGGAAATTCTACATTCT
GTCTATGAGTGTATAGAGAAAACATGTGAGAAACTTGGACAGCTCAATATTGATATTTCCAA
CATAAAAGGTATTTTAGTAGAATATTTTACCCACA

Exon 4:
TGTAAAACGACGGCCAGTTGAGAGCTGTTTTCCTGAAGTAGTTCCTACTTGTTAAATTTTTG
ACTTCCTTCTGTTTAACTTTCTCTTTAAAGCTATTGGTGTCAGCAACCAGAGGGAAACCACT
GTAGTCTGGGACAAGATAACTGGAGAGCCTCTCTACAATGCTGTGGGTAAGCTGTCATGCAT
GGATGTCAAATGTAGGGCCTTTCTTCACATTGCAA

Exon 5:
TGTAAAACGACGGCCAGTTCCTTGATAGTGATTTCAGTAAGTTCTTATTTTTTTAAATGAAG
TTTTTCATGTATATTATTTTATTTTGGTCTATAGTGTGGCTTGATCTAAGAACCCAGTCTAC
CGTTGAGAGTCTTAGTAAAAGAATTCCAGGAAATAATAACTTTGTCAAGGTAAGAATTTCTT
CAGAAGTATACTATAAGAATGTTTCTTTTTTTAAAAAAAGTTTGCAGATTTCACTAGAAAGA
AGCATCTTATGGTACAATAGTTATTTGATACAATTTATAGAATCTTTTTCCCGGATAATTGA
GGCC

Exon 6:
TGTAAAACGACGGCCAGTTTCTTTTGTTTGGTGGTTTTGTTTTAAACTGTTACACTTTTCAT
TTGCTAACTGAACTTCACAACTGCTTTTAGTCCAAGACAGGCCTTCCACTTAGCACTTACTT
CAGTGCAGTGAAACTTCGTTGGCTCCTTGACAATGTGAGAAAAGTTCAAAAGGCCGTTGAAG
AAAAACGAGCTCTTTTTGGGACTATTGATTCATGGCTTATTTGGGTATGTTTAAATATAATG
GATATATGGAGAATTTTTTCAGAAATTTTTTCTAGACTGCCTTGCCTATTGTTTCTACTAGC
AGGTCAGACTTTTTAATTAGCA

Figure 7A

Exon 7:

TGTAAAACGACGGCCAGTTGTGCTCTGCTGATTATGACCCTTAACAATATGTAAATTAAATT
GCCAATAAGTACAAATTTAACCTGATTTTTTTACTCTGCCTAGAGTTTGACAGGAGGAGTCA
ATGGAGGTGTCCACTGTACAGATGTAACAAATGCAAGTAGGACTATGCTTTTCAACATTCAT
TCTTTGGAATGGGATAAACAACTCTGCGAGTAAGTTCTGTTTTGCTCTAAATATAGTTTTCC
CAATACACTACCTATTTATAACCGAAATCTTAATATTTTCAGATGTCAGTGGAGCA

Exon 8:

TGTAAAACGACGGCCAGTACAGTGTTAAATACCCAATCTTCTTGTTTTTCAGATTTTTTGGA
ATTCCAATGGAAATTCTTCCAAATGTCCGGAGTTCTTCTGAGATCTATGGCCTAATGGTAAA
AAACAAACAAA[A/C]AAACAAAAAACACACCAAAAAACCAAAAAACAAACAAAAAAAAACC
TAATAATTAAAGTTTTTTTATTACAAAACAAGTTTACTATTCATAATTCAAAAGTCAACTGT
GTTATGTTTTGTGACTTAAAAACTTTACAGTCCTTTTTACAATGG

Exons 9A and 9B

AAAGCTGGGGCCTTGGAAGGTGTGCCAATATCTGGGGTAAGTTTCATCACCAAGTGTCTCCC
CATCCCCACCCTTCCCCATGTTATGGCTTTCCTCCTCTTAGTTCATCAGTGTGCCTCTTTTT
AAACTAGGGAAAACAAGTAAAAGTTGCAAAATTGGANNNNTCTTGTTCTTACATGTCATACT
GTGGGCCATTGAGAATCTTTTGAATAAATTAATTTTAACTCTCCCTTCCCATACCTATTATC
TTACATATTAACAAATGGTATTAACAAATGGGGAAAATGGCCAAATGGAGAAAATGCAAGGA
AATAGACAGTTCATTCTTTGATAAATAAAAAATGAAAAATAAATCCTATGGCTCTTCTAAAA
AGAAAGTTAATACTATTGTATTAGTCAGTGTTCTTTATTGTCATTTATACTTTCAGTGTTTA
GGGGACCAGTCTGCTGCATTGGTGGGACAAATGTGCTTCCAGATTGGACAAGCCAAAAATAC
GTGAGTTTAAGAAACAGACTTAAAAACCAATGCTGTTTTGTTTTTTCTACTTGGTGCTTTGA
ATAAGGAAAAGCTTTTGAAGTTCATCCAGGATGAAAATCAATAGCTTAATAGCTCCAATATG
CATATATACACTTTTTACCATTTTTTTATATCTTTAAATAAAATACAAAA
TGCCATATATATGCACACTGATGAAGCTTATAAAGACCTAAATTTGTAGGCTGGGCGCGG

Exons 10 and 11:

TTATTTGCTTTCAATAAAATTGTCTTCTATTCATTCTCCCTTCAACCATAGGTATGGAACAG
GATGTTTCTTACTATGT[A/G]ATACAGGCCATAAGGTTGGTTTTTTAAATTAAAAAATTGA
TTTAAAAGTCTAAGTTCATCTAAATAATGCTTGAACATAATTTACTATTAAACAACTTTTAG
TCTTTAGCTTTTACTTAATCTTTATCAGGGTTTAATTTAGAGCTCAATACAAAATTTGAATC
GTTCTAATAAGAACCATTTTAGACTCTTTGAATTTTATATGTGTGTTTTTAATTGTGCTGGG
GGGAAATCTAGACTGAGACCTCATCAAATTCTTAATGCAAATCTAATTTGAAACAAGGAATA
AACTTTTTATACAGCTTAAATGTGTTCTTAATTCTGATCGTTTTGACTGTAAGGATTTATTT
TAAAAATTGGTTTATTGATTGCATTATTTTGTACCTATGTTATTTTAACTTTAAAAAAAAGT
TCTCATGTTATCTTTTCATTTTCCACTACTGAAATCTTTTTTTTTTCTTTCTTACAGTGTGT
ATTTTCTGATCATGGCCTTCTCACCACAGTGGCTTACAAACTTGGCAGAGACAAACCAGTAT
ATTATGCTTTGGAAGTAAGTTCTTTTTAATCAATATGGATAATATGACAAACATTCAAAGCT
AATAAAAATCACAGAGTTTTCTAACACTTTTCTGGTAAATCTTAATACAGAGGACTCAAAAA
GTTCTGCTTTCTTGGCATTTGATTGAGTTGAAGGAACCTGAAACTGATCTGGGTGTCAGGAC
TCACAGGAGACCTTGATTAGATTGGTTCCTCAGTTCTTATGCCAATTAATCATGTCACCTTA
GGCATATTACTTGAGAGCTCTACAATGTGAGGTTTTTTTTTTTTTTATCTCTAAAGTTTAAT
CGGATTAACGTGCTCTCTAACATTTCTTTCATCTTGAAAATTCTTTGATTTTATAAATAAAA
TGCTCCAGTGTTCCAAAGAGAACCCTGGGCACAAATAGGCAGAACAACTCTCTTCACTTGTC
TCCTCATAAAAATAAATTTTGTGTAACATTTTGATATAGAAAAGAAAGCGACGAGATTTATG
CCACTTATCACTGGAAACATTTGTTTCAAACATTTTTGTATGTTATAGTAGGAATATGCCAG
CCTAAGCCTATA

Figure 7B

Exon 12:
TTTTATTAGTGACTTAGATAAAACTATGTTTGTATTAGAAGACCTAGTTTACATATTTGTCG
GAGTCTCAAAATGGAAACTGAATTCTGTCCATCTGATTGTGTCATACACAGAATATGCTCAA
TAAAAACCTTGGATAGTGATAAAATATATTCTGTCTTGAATTCCTTTTTTTCTTTAGGGTTC
TGTAGCTATAGCTGGTGCTGTTATTCGCTGGCTAAGAGACAATCTTGGAATTATAAAGACCT
CAGAAGAAATTGGTGAGTGTGTTCTAACAAAAG[G/T]TTAGAAAATCTGAAAAATGACACA
TTTCAGTATTTTATCTCTGCAAAGTAAATATCGATGCTTTGCCCCAAATGTGAT

Exon 13:
CCAGTTGTGTGATTTTTGTTTTGTTTTGTTTTAATGTTAGAAAAACTTGCTAAAGAAGTAGG
TACTTCTTATGGCTGCTACTTCGTCCCAGCATTTTCGGGGTAATATGCACCTTATTGGGAGC
CCAGCGCAAGAGGGTAAGTATTGAAAATATGGAGTGCTTTTGGGGATCTTGATTTAT

Exons 14 and 15:
TGTAAAACGACGGCCAGTTGATTATGTCCAATTTTCTCTTCCTGGACATTTCTGTCTACCAA
ATTTGACCTTTTCATATTTGAGATATTTCAAATTGATTGGTTTATATCATTCTAATCTGAAA
ATCTTTGTGCGTATTTTTAGGATAATCTGTGGACTCACTCAGTTCACCAATAAATGCCATAT
TGCTTTTGCTGCATTAGAAGCTGTTTGTTTCCAAACTCGAGAGGTAACAAATATGGGCCTGT
TTTCTTGTACTTAGTTCACTTTTATCACTCTTAAGTTATATGTTAACACCCGAGATTTATTC
AGTACTGAAAATGTAGTTAATCAAATATTAAGGCTGCCTAAATACTAATCTAAATATAAGCA
GGGTTTTCCCCCTTTTTCCAGCTGTCATTACCTTCTAAGTTCCTGTTCCCTGTCAGGCACTG
GGAAATTTATGGTTGTGGGGAGGCTGAGTGGCACACATTAGGCAAAGGAAACAGCACAAACA
TAGGCATCaAGGCAGAAAAACAGGGTGCAAAATAGAGTTGTATAGCTTAGCTGAATATCAAG
GTGAATGCAGAGGTGTAGTGAGAGAAAAGGTTGGCTGTGACCAGATCAAAGAGGGCTTAGAA
GACCAGAATAAGAAGTCTCAATTTATTCCATAGGCTCTTGGAAGCTCTTGAGAGTTTCTGAG
TGGAGGATTGCCATTTTCAGAGATGTTACTATGAAATAGATTTATAACATTAATTGCACTGG
TTTATTTAAGATTTTGGATGCCATGAATCGAGACTGTGGAATTCCACTCAGTCATTTGCAGG
TAGATGGAGGAATGACCAGCAACAAAATTCTTATGCAGCTACAAGCAGACATTCTGTATATA
CCAGTAGGTTAGTAAGTCTTCATTCCTTTAAACTCCCAGAGTAATGTTTCTTGTGGAATAAC
TAGTTCTTTGGG

Exon 16:
TGTAAAACGACGGCCAGTTCCCAGAGTAATGTTTCTTGTGGAATAACTAGTTCTTTGGGCAT
ATGTAACCACAAAGATATTGATGGAACTCTCTCTCCTCAGTGAAGCCCTCAATGCCCGAAAC
CACTGCACTGGGTGCGGCTATGGCGGCAGGGGCTGCAGAAGGAGTCGGCGTATGGAGTCTCG
AACCCGAGGATTTGTCTGCCGTCACGATGGAGCGGTTTGAACCTCAGATTAATGCGGAGGGT
ACATTTAAAGAATGAAATGTTCAGTGATATACTGTGAAAACGACCTTAGTGCACGGGAGTTT
TGTTTTTCTGTTTAGTTAAAAGTTAAGGAACCAAGTAAAATAGTAAATGTTATCATTGCAGA
TTCGGCTGCCAAGCATATTGGGCTTTACTGAATAAATGTGAATGAGAGAAATCGTTGCTTAT
CAAAAGAACTTCTAAAATCACTTTTTAAAAATCATT

Exon 17:
TGTAAAACGACGGCCAGTAGCCCTACTGCAGTTTAATGTGTCAATAATTTGTCAAGAATGTT
GAGTGATCATAAGTATGGTACTAAGAACATCTCAGCAAACTACCTTTCGTTATGTGTTTTTT
CTACCTTCTAATTCTAGAAAGTGAAATTCGTTATTCTACATGGAAGAAAGCTGTGATGAAGT
CAATGGGTTGGGTTACAACTCAATCTCCAGAAAGTGGTAAAAATGTTTTTGTTTATTATTGT
CACATTTTCTTAGTATATTAAATAGTTATTTAAGTATCTAGGCATTTACACATAGCCAGGCT
GCTCTGAAGAAAAGCATTATCATATGTCCAGAGATTCTGACATTTTGAAAACACTTTAAAGT
TCTAAACACAAAATGTAAATTATCAGGTGT

Figure 7C

Exon 18:

TGTAAAACGACGGCCAGTTGGTTTGGTTTGCTTGACTGGAATCTCTTCTGCTTGGATGACCA
CAGGTGACCCTAGTATCTTCTGTAGTCTGCCCTTGGGCTTTTTTATAGTGAGTAGCATGGTA
ATGTTAATCGGAGCAAGGTACATCTCAGGTTAGTTACTCTTTAAATTAGACAACTCTATTAG
TTAGCTTTAATGTTTTCGTGTATAACTTAGCAGAAATTTTTCAGTGTTTTTCATTCTTTCTG
TGTCTAGGAAGCTGGAAAATCAATTAAAGGTCTAATTAGTTAGACCAATTAATCTTTGGGGG
CAGTTAGAAGTAAGAACTGTGACTCTGCTTACCCTTTTTAAATTTTTAATGTGATGACTTCT
TTAAGAGGGACTACATTCTGCTGTCAGCTGCAGCAATAAGCAAAAGTGAAAATACTAATATT
TAAATGACAGGACTTTCAGACTGACTGCTGAAAGTTAAAGTATACTT

Exon 19:

AAAATTACTGGCTTAAATGGAAATGATGCTTCTTATTCTGTATGTTCCCATGAAAGTGAAAC
TTAAAAAAAAAATTCATGATTAGGGTTTCATGAAAAGGCCTTGTTTCTATGAAAATTGAGAC
AGGTTGCATCTCTCTAAGCTAAAAGATGGGCTATGTGTCTAGAGTCTTAGACTTCTAAAATG
CATGTGGTCACTATATGTAGGTTATCTCTTCGGTGACATACACTGCAATTTGAGAGGGCTGG
AAATTGTTTGCCTTGGTAAACGATTAGCAACAGTGGCAATATTTGTTAATTTTGGAATTGGC
CCTGTTTGTTGCATTTTAATTGTGAGGCATGATTTAGAAATCATATGGACTTTCTAGCTTAA
TAAATGATTGAATCATCTGCATTGCTTTAACTCCTGAATTGTATGCATGTATTATTGACATA
TATGGTTTTTGTTCCCCATTTCAGGTATTCCATAAAACCTACCAACTCATGGATTCCCAAGA
TGTGAGCTTTTTACATAATGAAAGAACCCAGCAATTCTGTCTCTTAATGCAATGACACTATT
CATAGACTTTGATTTTATTTATAAGCCACTTGCTGCATGACCCTCCAAGTAGACCTGTGGCT
TAAAATAAAGAAAATGCAGCAAAAAGAATGCTATAGAAATATTTGGTGGTTTTTTTTTTTTT
TAAACATCCACAGTTAAGGTTGGGCCAGCTACCTTTGGGGCTGACCCCCTCCATTGCCATAA
CATCCTGCTCCATTCCCTCTAAGATGTAGGAAGAATTCGGATCCTTACCATTGGAATCTTCC
ATCGAACATACTCAAACACTTTTGGACCAGGATTTGAGTCTCTGCATGACATATACTTGATT
AAAAGGTTATTACTAACCTGTTAAAAATCAGCAGCTCTTTGCTTTTAAGAGACACCCTAAAA
GTCTTCTTTTCTACATAGTTGAAGACAGCAACATCTTCACTGAATGTTTGAATAGAAACCTC
TACTAAATTATTAAAATAGACATTTAGTGTTCTCACAGCTTGGATATTTTTCTGAAAAGTTA
TTTGCCAAAACTGAAATCCTTCAGATGTTTTCCATGGTCCCACTAATTATAATGACTTTCTG
TCTGGGTCTTATAGGAAAAGATACTTTCTTTTTTCTTCCATCTTTCCTTTTTATATTTTTTA
CTTTGTATGTATAACATACATGCCTATATATTTTATACACTGAGGGAGCCCATTTATAAATA
AAGAGCACATTATATTCAGAAGGTTCTAACAGGG

Figure 7D

Table 1. Characteristics of Carriers of the N288D GK Gene Mutation and of Their Unaffected Relatives

	Men			Women		
	N288D carriers	Unaffected relatives	p	N288D carriers	Unaffected relatives	p
N	18	18		14	14	
Age (years)	46.4±14.2	42.0±18.8	0.32	44.9±13.5	43.7±17.8	0.87
Uncorrected triglyceride (mmol/L)(1)	6.26±1.13	2.05±0.54	<0.0001	2.84±1.20	1.30±0.65	0.0002
Glycerol (mmol/L)	3.99±0.71	0.10±0.04	<0.0001	0.54±0.14	0.10±0.02	<0.0001
Corrected triglyceride (mmol/L)(1)	2.27±0.75	1.95±0.53	<0.0001	2.31±1.22	1.19±0.67	0.03
Free fatty acid (mmol/L)	0.77±0.22	0.57±0.25	0.01	1.29±0.35	0.76±0.17	0.0004
Fasting glucose (mmol/L)	5.2±0.74	4.8±0.31	0.13	5.0±0.7	4.6±0.3	0.10
2h glucose following OGTT (mmol/L)	7.9±3.1	5.8±1.6	0.02	7.0±6.1	5.0±2.1	0.04
Fasting insulin (mU/L)(1)	13.3±14.0	15.1±14.8	0.62	12.2±13.1	9.0±3.4	0.60
Waist girth (cm)	97.7±9.3	88.1±12.3	0.01	88.5±3.8	79.8±5.8	0.03
Body mass index (kg/m^2)	27.9±4.1	24.9±3.9	0.03	28.1±5.5	23.1±2.3	0.001
%Total body fat	27.1±7.2	22.9±7.6	0.01	46.8±8.1	33.9±11.3	0.001

(1) Geometric mean, p after log transformation.

Figure 8

Table 2. Fasting plasma glycerol concentration (mmol/L) in the initial cohort of 1056 individuals, by risk factor of glucose intolerance and diabetes mellitus

		No.	Glycerol geometric mean ± SD	p
Gender				
men		717	0.065 ± 0.081	
women	- premenopaused	137	0.071 ± 0.093	<0.0001
	- menopaused	202	0.099 ± 0.085	
Age (Y)				
	<50	486	0.071 ± 0.082	
	50 - 60	408	0.076 ± 0.106	0.0015
	>60	165	0.083 ± 0.053	
Fasting glucose (mmol/L)				
	< 5.2	449	0.068 ± 0.080	
	5.2 - 5.9	336	0.070 ± 0.090	<0.0001
	6.0 - 6.9	271	0.090 ± 0.100	
Fasting insulin (UI)				
	<15	637	0.067 ± 0.082	0.02
	≥15	419	0.086 ± 0.101	
2 hours glucose (mmol/L)				
	<7.8	572	0.062 ± 0.071	
	7.8 - 11.0	283	0.081 ± 0.101	<0.0001
	ε11.1	201	0.102 ± 0.110	
Triglyceride (mmol/L)				
	≤ 2.2	389	0.057 ± 0.062	<0.0001
	>2.2	667	0.082 ± 0.103	
Free fatty acid (mmol/L)				
	< 0.6	589	0.066 ± 0.054	<0.0001
	ε0.6	467	0.111 ± 0.112	
Body mass index (kg/m2)				
	≤ 27	428	0.060 ± 0.087	<0.0001
	>27	628	0.079 ± 0.097	

p value from a one-way ANOVA

Figure 9

Table 3. Multivariate analysis of the relationships of fasting plasma glycerol concentration with impaired glucose tolerance (2h glucose 7,8-11,0 mmol/L following a 75 g oral load) before and after adjustment for covariates identified in

	Model 1	Model 2	Model 3	Model 4
Glycerol (log)				
ß	1.75	1.62	1.46	0.77
Odds ratio	5.76	5.42	4.33	2.46
p	<0.0001	<0.0001	<0.0001	0.01
Triglyceride (log)				
ß		0.54	0.35	0.12
Odds ratio		1.75	1.42	1.12
p		0.02	0.11	0.63
Body mass index (kg/m^2)				
ß			0.10	0.05
Odds ratio			1.10	1.05
p			<0.0001	0.01
Fasting insulin (log)				
ß				0.57
Odds ratio				1.31
p				0.39
Fasting glucose (mmol/L)				
ß				1.13
Odds ratio				2.65
p				<0.0001
Free fatty acid (log)				
ß				1.62
Odds ratio				4.33
p				0.007

Figure 10